SUBSCRIPTIONS FOR 1934 NOW PAYABLE

Detachable Subscription Blank in this Number

ENTOMOLOGICAL NEWS

FEBRUARY, 1934

Vol. XLV No. 2

HARRISON GRAY DYAR,
1866-1929.

CONTENTS

Cockerell—October Bee-collecting in Colorado (Hymenoptera: Apoidea) 29
Bradley—Records of Ampulicidae (Hymenoptera: Sphecoidea 32
Grey—Lepidoptera from a Maine Bog. 35
Kite—A Calendar of Ozark Butterflies, Lake Taneycomo Region, Mo . 36
Frost—A New Species Related to Agromyza virens Loew (Dipt.: Agromyzidae) 40
Brimley—New Species of Wasps from North Carolina (Hymenoptera, Psammocharidae) 41
Britton—A Tropical Moth in Connecticut (Lepid.: Sphingidae)..... 43
Bird—The Emergence and Nymph of Gomphus militaris (Odonata, Gomphinae)..... 44
Editorial—Entomology at the Convocation Week Meetings, December 27, 1933, to January 2, 1934. 47
Gamble—An Observation on the Activity of Laccophilus maculosus Say (Coleoptera-Dytiscidae) 49
Needham—Change of Name (Odonata: Agrionidae)..... 50
Emery—Another Case of Odonate Migration (Aeshnidae)..... 50
Cockerell—Thecla siva Edwards (Lepid.: Lycaenidae) 51
Aldrich—Revista de Entomologia..... 51
Entomological Literature. 52
Obituary—Dr. Nelson C. Davis 56

PHILADELPHIA, PA.
THE ACADEMY OF NATURAL SCIENCES,
Logan Square

Entered at the Philadelphia, Pa., Post Office as Second Class Matter.
Acceptance for mailing at the special rate of postage prescribed for in Section 1.
Act of October 3, 1917, authorized January 15, 1921.

ENTOMOLOGICAL NEWS

published monthly, excepting August and September, by The American Entomological Society.

Philip P. Calvert, Ph.D., Editor; E. T. Cresson, Jr., R. G. Schmieder, Ph.D., Associate Editors.

Advisory Committee: Philip Laurent, J. A. G. Rehn, Chas. Liebeck, J. Chester Bradley, Ph.D., Frank Morton Jones, Sc.D., John C. Lutz, Max Kisliuk, Jr., Wm. W. Chapman.

The subscription price per year of ten (10) numbers is as follows:

United States and possessions, Central and South America	$3.00
Canada	3.15
Foreign	3.25

Single copies 35 cents.

ADVERTISING RATES: Full width of page. Payments in advance.
One issue, 1 in., $ 1.20, 2 in., $ 2.40, half page, $ 4.00, full page, $ 7.00
Ten issues " 11.00, " 20.00, " 35.00, " 60.00

SUBSCRIPTIONS. All remittances and communications regarding subscriptions, non-receipt of the NEWS or of reprints, and requests for sample copies, should be addressed to

ENTOMOLOGICAL NEWS, 1900 Race Street, PHILADELPHIA, PA.

All complaints regarding non-receipt of issues of the NEWS should be presented within three months from date of mailing of the issue. After that time such numbers, if available, will be supplied only by purchase. Not more than two issues will be replaced gratis, through loss in transit or in change of address, unless such have been registered, at the subscriber's expense. No subscriptions accepted which involve giving a receipt acknowledged before a notary, except at the subscriber's expense.

MANUSCRIPTS AND ADVERTISEMENTS. Address all other communications to the editor, Dr. P. P. Calvert, Zoological Laboratory, University of Pennsylvania, Philadelphia, Pa.

TO CONTRIBUTORS. All contributions will be considered and passed upon at our earliest convenience and, as far as may be, will be published according to date of reception. The receipt of all papers will be acknowledged. Owing to the limited size of each number of the NEWS, articles longer than six printed pages will be published in two or more installments, unless the author be willing to pay for the cost of a sufficient number of additional pages in any one issue to enable such an article to appear without division.

Proof will be sent to authors. Twenty-five "extras" of an author's contribution, without change in form and without covers, will be given free when they are wanted; if more than twenty-five copies are desired *this should be stated on the MS.*

Owing to increased cost of labor and materials, no illustrations will be published in the NEWS for the present, except where authors furnish the necessary blocks (or pay in advance the cost of making blocks) and also pay for the cost of printing plates. Information as to the cost will be furnished in each case on application to the Editor. Blocks furnished or paid for by authors will, of course, be returned to authors, after publication, if desired.

Stated Meetings of The American Entomological Society will be held at 8.00 P. M., in 1934, on the fourth Thursday of each month excepting February, June, July and August, and on the third Thursday of February.

Communications on observations made in the course of your studies are solicited; also exhibits of any specimens you consider of interest.

The printer of the "News" will furnish reprints of articles without covers over and above the twenty-five given free at the following rates: One or two pages, twenty-five copies, 35 cents; three or four pages, twenty-five copies, 70 cents; five to eight pages, twenty-five copies, $1.40; nine to twelve pages, twenty-five copies, $2,00; each half-tone plate twenty-five copies, 30 cents; each plate of line cuts, twenty-five copies, 25 cents; greater numbers of copies will be at the corresponding multiples of these rates. Printed covers for 50 copies, $4.00 or more, according to number of pages bound.

ENTOMOLOGICAL NEWS

VOL. XLV. FEBRUARY, 1934 No. 2

October Bee-collecting in Colorado (Hymenoptera : Apoidea).

By T. D. A. COCKERELL, University of Colorado, Boulder, Colorado.

The season being unusually fine and warm, on October 1, 1933, we (Mr. and Mrs. Chas. Wagner, Mr. and Mrs. Cockerell) went to Hudson, Colorado, in search of bees. The locality is out on the plains, in Weld County, at an altitude of 5000 feet. We obtained a good series of bees, all at *Grindelia*, except a single *Dianthidium* on *Helianthus petiolaris*. The collection is sufficiently interesting to be worth recording.

APIS MELLIFERA CARNICA Pollm., one.

APIS MELLIFERA LIGUSTICA Spin., common.

MEGACHILE BREVIS Say, one female, no pollen collected.

DIANTHIDIUM SAYI Ckll., both sexes.

EPEOLUS PUSILLUS Cresson. One female, with axillae red at end. Either this species is very variable, or as now accepted, it includes more than one thing. I have not sufficient material to reach a definite decision.

AGAPOSTEMON ANGELICUS Ckll. Described from Angel de la Guarda Island, Lower California, but it proves to be widespread in the west. I recently found it nesting on the outskirts of a colony of *Diadasia australis* Cresson, near Denver. Two males were taken at Hudson.

HALICTUS PARALLELUS Say. One female, a variety with black femora. This species is common in Kansas, but rarely taken in Colorado.

HALICTUS LIGATUS Say (ARMATICEPS Cresson). Two males.

Halictus (Evylaeus) grindeliae sp. n.

♀. Length about 6 mm., anterior wing 4.7; pure black, including legs and antennae, the last three joints of flagellum obscurely brownish below; hair of head and thorax scanty, greyish white; head broad but rather elongate, the orbits converging below; clypeus with lower half highly polished, with a strong median depression, upper half dull; supraclypeal area shining; sides of face with thin dull white hair; vertex shining;

mesothorax bare and highly polished, with excessively fine punctures; region of tubercles very hairy; scutellum shining, not depressed in middle; postscutellum not covered with tomentum; area of metathorax large, dullish, with a narrow shining margin; the microscope shows the area to be covered with very irregular, not dense, wrinkles, which reach the margin, while the apical margin is broadly truncate (not angulate as in *H. pectoraloides*); rim of posterior truncation of metathorax failing above; tegulae rather large, elongate, shining black, not punctured, except for a few weak piliferous punctures in front; wings clear hyaline, iridescent; stigma large, dark reddish brown; nervures light brown, outer ones evanescent as usual in the subgenus; first recurrent nervure meeting intercubitus; legs with greyish-white hair; spurs light red, hind spur with about five strong spines; abdomen broad, highly polished, the margins of the tergites not at all pallid; first tergite not evidently punctured; no hair-spots on first tergite; second and third with elongated patches of white tomentum at each side of base; apex with thin white hair. Under the microscope the mesothorax and scutellum show scattered punctures of different sizes. There is no deep median groove in mesothorax, such as exists in *H. macoupinensis* Rob., to the vicinity of which it runs in Crawford's table. It is more like *H. divergens* Lovell in the shape of head (but head is broader than in *divergens*), but that differs at once in the area of metathorax, which has the very delicate plicae confined to the basal part except at sides. *H. pectoraloides* Ckll. is a very similar species, but with a much lighter stigma, and different metathorax. The area of metathorax is quite different from that of *H. glabriventris* Crawf.

Type. From Hudson, COLORADO, October 1, 1933. In the author's collection.

XENOGLOSSODES EXCURRENS Ckll. One female; eyes in life blue-grey.

Melissodes octobris sp. n.

♀. Length about 10.5 mm., anterior wing 8.2; black, with pale, faintly tawny hair, sooty or black at end of abdomen, and black on inner side of hind tarsi, but white on inner side of hind tibiae; flagellum red beneath except basally, the ends of the joints dusky; tegulae very dark brown, with light hair; wings hyaline, suffused with reddish; eyes pure black, but drying to pale grey. This is a species with a very broad short head and very wide face, like *M. pallidicincta* Ckll., of which I should consider it a

variety, but for the fact that the first tergite (except the depressed apical portion) is very distinctly though finely punctured, as seen under a lens, and is also moderately shining, whereas in *M. pallidicincta* (and also its var. *erythrina* Ckll.) this part is dull and not distinctly punctured. The clypeus is dull and very densely punctured all over, not shining in middle as in *pallidicincta*. The punctures are dense and more regular than in *erythrina*, but it agrees with that form in having a distinct though delicate median raised line. Sides of face rather dull, very hairy; supraclypeal area smooth and shining; each side of vertex with a broad shining basin; no dark hairs on head or thorax above; disc of mesothorax posteriorly polished and sparsely but strongly punctured; scutellum shining, but more punctured than in *erythrina;* posterior truncation of metathorax dull, but with a pair of shining foveae at lower end (in *erythrina* represented by narrow shining bands, and about the same in *pallidicincta*); venation as in *pallidicincta;* scopa of hind legs very large, full of the bright orange *Grindelia* pollen (the type of *erythrina* has collected red pollen); abdomen broad, hind margins of tergites brownish; declivity of first tergite with white hair; bands at base and middle of second tergite, and middle of third and fourth; depression of second tergite broader (antero-posteriorly) than the raised part above. The rather broad whitish margin of first tergite of *pallidicincta* (and *erythrina*) is replaced by a mere line. The abdominal bands appear to be feebly developed, but they would doubtless appear stronger in a freshly-emerged specimen, though surely not as in *pallidicincta*. The hair of sides and under parts of thorax is all light. In Robertson's (1905) table this runs out at 16. It is easily distinguished from the superficially similar *M. confusiformis incondita* Ckll. by the reddish wings, highly polished disc of mesothorax and distinctly punctured first tergite. From *M. glenwoodensis* Ckll. it is known by the shape of head, light hair on inner side of hind tibiae, and other characters. In my table of 1906 (Trans. Am. Ent. Soc.) it runs to group K, and under this to 6.

Type. From Hudson, Colorado, October 1, 1933. In the author's collection.

Also at Hudson, we took the coccid *Amonostherium lichtensioides* (Ckll.) on *Artemisia;* and galls of *Aylax pisum* Walsh on *Lygodesmia juncea*. An asilid fly taken has been determined by Mr. M. James as *Erax bicaudatus* Hine.

Records of Ampulicidae (Hymenoptera : Sphecoidea).

By J. Chester Bradley, Cornell University, Ithaca, New York.

As definite records of capture of species of Ampulicidae are not frequent in literature, it has seemed worth while to record some species which I have recently had occasion to determine for the collection of Cornell University.

Ampulex canaliculatus Say.

1823. *Ampulex canaliculatus* Say. Western quarterly reporter, 2:76.

1844. *Rhinopsis abbottii* Westwood, ♀. Arc. entomol. vol. 2, p. 68, fig. 5.

1849. *Ampulex pennsylvanicus* Haldeman. Proc. Acad. Nat. Sci. Phila. 4:203.

1912. *Rhinopsis melanognatha* Rohwer, stated as ♀, but actually ♂. Proc. U. S. Nat. Mus. 41:464.

1929. *Rhinopsis caniculatus* Williams, ♀ ♂, Proc. Haw. Ent. Soc. 7:318-29, Figs. 2-5.

Williams, (*loc. cit.*) considers that *melanognathus* Rohwer, actually described from the male sex, is identical with reared males of *canaliculatus*. *Abbottii* and *pennsylvanicus* are usually considered synonyms, and probably are so, but specimens are exceedingly rare, and so far as I am aware no one has ever assembled any considerable number from various localities for careful comparison in order to see whether we have more than one species or not. Say's description of 3 frontal carina does not agree with my specimen, but the difference may be sexual. Williams bred both sexes, and figures the clypeus of each, but he does not otherwise describe characters that might be diagnostic.

Williams, (*loc. cit.*) gives a very valuable account of the habits of the species.

Abbottii is the type of Westwood's genus *Rhinopsis*, based on the single character of possessing 2 instead of 3 closed cubital cells. Kohl, besides pointing out the variability of this character, believes that several of the species normally with 2 submarginals have their closest relations not with each other but with species with three cells. Of course, if this is a fact, *Rhinopsis* is not tenable even as a subgenus.

Habitat: According to Williams, generally distributed in the United States west of the Mississippi, ranging into Canada. I expect that it is an austral form, and that if it ranges into Canada, it is probably only in the Carolinian area along Lake Erie. Actual records known to me are as follows:

CONNECTICUT: Manchester, 1 ♂, Sept. 13, '10 (A. B. Champlain, type of *melanognathus*). NEW YORK: Long Island, Central Park and Yaphank. PENNSYLVANIA: (type of *pennsylvanicus*). VIRGINIA: Falls Church, 1 ♂, May 10, '24 (Kearney—C. U.). GEORGIA: (type of *abbottii*). MISSOURI: (type locality); Webster Groves, 1 ♀, June 12, '28 (F. X. Williams).

AMPULEX LAEVIGATA Kohl, PHILIPPINE IDS.: Saman, 1 ♀, June 21, '24 (R. C. MacGregor—C. U.).

AMPULEX NEOTROPICA Kohl, COSTA RICA: Tres Rios, in extreme southeastern part, 1 ♀, 3 May 1924 (the author—C. U.).

AMPULEX DUBIA Kohl, TRINIDAD: Port of Spain, 1 ♂, 1 Oct. 1920, (W. T. M. Forbes—C. U.).

AMPULEX ERYTHROPUS Kohl, SARAWAK: Kutching, 1 ♀, (F. W. Foxworthy—C. U.).

AMPULEX PILIPES Kohl

Described from Guinea, and evidently unknown to Arnold who (the Sphegidae of South Africa, part 9. Ann. Transvaal. Mus. 1928. 12:2) quotes Kohl's description. PORTUGESE EAST AFRICA: Lourenço Marques, 1 ♂, May 1915 (H. Junod—C. U.).

AMPULEX SAGAX Kohl. Described without knowledge of the region which it inhabits. BRITISH GUIANA: Bartica, 1 ♀, 4 March, '13 (H. L. Parish—C. U.).

AMPULEX SURINAMENSIS Sauss. BRITISH GUIANA: Bartica, 1 ♀, 23 Jan., '13, and Demerara River, 1 ♀, 18 March, '13 (H. L. Parish—C. U.).

DOLICHURUS GREENEI Rohwer

1916. Proc. Ent. Soc. Wash. 18:212-13.

♂. Black; clypeus and rim of frontal platform, mandibles except tips, and pronotal tubercles whitish testaceous; tibiae and tarsi testaceous; antennae brown, paler beneath. Vestiture silvery. Wings nearly hyaline. Length 5.5 mm.

Clypeus but slightly, broadly convex, (not strongly swollen as in *corniculus*), its end broadly rounded, almost truncate with a slightest suggestion of a median tooth, without lateral teeth

or tubercles, (in *corniculus* with a median tooth, and on each side a tubercle), its disc without a median carina (present and sharp in *corniculus*); frontal platform horse-shoe shaped, prominently overlying the bases of the antennae, depressed medially at base, its arms not extending upwards as carinae; no median facial carina (present in *corniculus*); front to the height of the ocelli closely shallowly and rather finely reticulate-punctate, vertex smooth, polished, with few sparse, small punctures; cheeks shining with only a groundwork of minute setigerous punctures, except toward the mandibles where they are more coarsely punctate; mandibles broad, short and with a broad inner tooth. Antennae exceptionally long and slender, the scape angularly subcylindrical or somewhat clavate (not strongly expanded and flattened as in *corniculus*), third segment a little shorter than the fourth.

Dorsal surface of collar short and very transverse (much more so than in *corniculus*), with two prominent, transverse white tubercles at the middle of each side, interrupted medially by a weak depression (in *corniculus* the lateral prominences are placed more posteriorly and slant obliquely backward, most pointed at their apices, and otherwise differently shaped, and the dorsal surface of the collar shapes less abruptly into the anterior); anterior and dorsal surfaces of collar with some fine transverse striae, replaced by punctures on the tubercles; mesonotum shining and with scattered fine punctures, with a median longitudinal furrow (absent in *corniculus*) between the deep parapsidal furrows; scutellum with somewhat denser, small punctures; mesopleura shining, with evenly spaced, fine punctures, above with an irregular slightly sunken, sharply delimited area (replaced in *corniculus* by a convex area crossed longitudinally by a groove); no trace of an episternal suture (present in *corniculus*); anterior and posterior surface of propodeum irregularly reticulate.

Abdomen with three exposed segments, highly polished and evenly very sparsely minutely punctulate, the sutures strongly constricted.

Allotype—Cornell University number 1113.1.

Distribution—ONTARIO: Gull Lake, Muskoka District, 1 ♀, July 21, (H. L. Parish—Cornell University. PENNSYLVANIA: Lehigh Gap, 1 ♂ (allotype) July 25, 1903 (the author). VIRGINIA: Falls Church, 1 ♀, 18 Aug. (N. Banks—Mus. Comp. Zool.) also 1 ♀, Sept. 15 (holotype). GEORGIA: Toccoa, 1 ♂, 18 Aug. '09 (the author—Cornell University). FLORIDA: Palatka, 1 ♂, (the author).

Lepidoptera from a Maine Bog.

By L. P. Grey, Lincoln, Maine.

The Lepidopterist who resorts to Maine for his summer's recreation should by all means contrive to pay a visit to the Passadumkeag Bogs. This grand collecting territory lies in Penobscot County, forty miles north of Bangor, near the Aroostook Trail; the bogs are one mile from Passadumkeag on the forest road between that town and Enfield.

I have collected in Maine for over ten years, and have found no other place where, in the proper season, there is such a concentration of insect life. Many of the species found there are rare in other localities, or at least not very common. I append a few records by way of example.

Oeneis jutta has been largely a myth in Maine since Fernald made his records many years ago. With the draining of the Orono-Stillwater Bog, to provide the University of Maine with an athletic field, the insect was deprived of its natural habitat, and is presumably extinct in this, a once-famous locality. I tried many times to rediscover this species, but without success until in 1929 an early June trip to Passadumkeag yielded two males. June 19, 1932, found me again on the bogs, and the day's chase was rewarded by over a dozen pairs, many of which I confess were battered. *Jutta* is a very active insect, and its structural fragility makes it a species that must be taken soon after emergence if one is to procure good specimens. I believe that anyone visiting these bogs the second week in June would be fairly sure of a few good pairs.

By the second week in July the place is covered with swarms of butterflies. *Chrysophanus epixanthe, Colias interior, Argynnis cybele* and *atlantis, Basilarchia arthemis, Satyrodes eurydice,* and *Atrytone bimacula* are common; many bog-loving Geometrids such as *Isturgia truncataria, Ematurga amitaria, Metarranthis obfirmaria,* and many others, are present in quantity. A great carnival of Microlepidoptera flutters at the lower levels.

I took one male *Samia columbia,* in the daytime, June 19,

1932. The bogs are more or less covered with stunted larch growth, and doubtless *columbia* is well established there.

Theclas are a great rarity in Maine, but diligent search early in the season will uncover a few species. There is an *Erora laeta* record, made a few miles from the bogs, in similar territory, and it is to be expected that some day another of this almost fabulous species may be captured here.

Night work, with "sugar" and light should yield fine catches in the nocturnals; for instance, *Sphinx canadensis* and *Proserpinus flavofasciata* both have been taken near Passadumkeag. I have found the larvae of *flavofasciata* there on *Epilobium*.

While I cannot guarantee that a casual visitor would take all these fine things, yet, given favorable weather, a few days spent in and around this bog should yield good catches. As previously stated, it is the best collecting ground that I have discovered. I have many good records from western Maine, and other parts of the state, but none of the other places seem to offer such a variety and *quantity* as may be secured from the Passadumkeag Bog region.

A warning to prospective visitors: Before packing a net, first be sure that you have put in a pair of knee waders and a goodly supply of "fly-dope." These two items are the most important part of one's outfit.

A Calendar of Ozark Butterflies, Lake Taneycomo Region, Missouri.

By Mrs. Vitae Kite, Hollister, Missouri.

It has been suggested by some of my entomological friends that I add my bit of observation regarding the butterflies of the Ozarks, in the Lake Taneycomo region, at Hollister, Missouri.

The following is a kind of calendar, taken from my note book kept during the past twelve years. The records show some variations in different years, yet average about the same except for 1932. The season of 1932 was preceded by an abnormally warm winter and a majority of our native species developed in

January and February, before the plant food appeared, resulting in no succeeding broods, as the larvae of course perished. From May until August we had practically *no* butterflies. After August, some late summer species came, but of *Dione vanillae, Danaus berenice* and *Aglais antiopa,* none at all.

My names are taken from Holland, except where otherwise mentioned from Comstock. The arrangement of genera is alphabetical.

ACHALARUS LYCIDAS hovers over the Zinnias in June and all through the late summer.

AGLAIS ANTIOPA is found early in March and again in August. They are not common as one seldom sees more than half a dozen during a season.

ANAEA ANDRIA is one of the earliest, appearing any sunny day through the winter, and like other hibernating species, is on the wing in early March. They are again numerous in late fall under the wild grape vines, and about persimmons on which they feast.

ANTHANASSA TEXANA appears in August, and I have taken them in October. Some were seen in early March, 1932.

ARGYNNIS CYBELE arrives in April; rather small at first but much larger specimens are found as summer advances. Not many after September.

A. BREMNERI comes in late June. Found them in February, 1932, but no more that season.

A. DIANA appeared in August, 1925. After taking a dark female, the third day thereafter the male appeared. This species is very rare.

ASTEROCAMPA CLYTON is seen in June, basking in the sun, with wings spread wide. It is scarce after August.

A. MONTIS appears in May and continues through October.

ATALOPEDES CAMPESTRIS is with us from June until late October.

BASILARCHIA ARCHIPPUS appears about May 20. It is with us until late October.

B. ASTYANAX was very rare in 1924 as I saw one only in June. Each year they have increased in numbers and now I find them until late October. They come to over-ripe bananas in numbers.

CALLIDRYAS EUBULE is on the wing from June until November.

CALLIDRYAS PHILEA appeared September 20, 1928, also October 1929.

CATOPSILIA THALESTRIS on October 10, 1929. Again in September, 1930.

CERCYONIS ALOPE are found in early June and continue until October.

C. NEPHELE appears in June and until October.

COLAENIS CILLENE was taken September 17, 1928. Very rare.

COLIAS EURYTHEME appears early in March and persists until November.

CYANIRIS LADON (Comstock) is a March visitor. Another brood, and in different coloring, persists until October.

DANAUS BERENICE is also a July visitor. Rather scarce.

DANAUS PLEXIPPUS is seen in early April. A scattering few through summer, and in large numbers during September and October.

DIONE VANILLAE comes in July, and I have taken them on November 28.

ENODIA CREOLA is found in August and late in September.

ENODIA PORTLANDIA is found in April and until late October.

EPARGYREUS TITYRUS appears in late April and through the summer.

EUCHLOE GENUTIA is a March visitor. Specimens occur for a few weeks then no more, being single brooded.

EUPTOIETA CLAUDIA appears in June and continues until late November.

EUPTYCHIA EURYTA comes in May, continuing until October.

EUREMA NICIPPE comes in early June, continuing until late October.

E. LISA was found March 8, 1931. It is most abundant in September and until November.

E. MEXICANA is found in July and continues until late October, when it increases in size and takes on a deeper yellow under wing, marbled with brown.

EVERES COMYNTAS (Comstock) appears early in April and until October.

HESPERIA COMMUNIS appears in June and continues until late September.

JUNONIA GENOVEVA first seen in early July; they continue until November.

LIBYTHEA BACHMANI taken May 19; they continue until late September.

MELITAEA PHAETON appears in July. Very rare. Have never seen one after August.

M. HARRISI is found April 1, but more plentiful in August.

NATHALIS IOLE is abundant from August until November.

PAPILIO AJAX. The spring form appears March 20, the summer form follows in June. Very rare after September.

P. CRESPHONTES comes in July, disappearing after September. One was taken on April 3, 1932, but no more that summer.

P. PHILENOR is an early March visitor and continues through November, or until freezing weather.

P. POLYXENES comes in early March. It appears again in August and September.

P. TROILUS appears in April and continues all through summer until late September.

P. TURNUS appears in early March, becoming scarce through June and July. Again in August we have a larger, more beautiful brood, with many black dimorphic females in evidence. A few in September.

PHOEBUS AGARITHE taken September 20, 1928. Very rare.

PIERIS PROTODICE was taken February 4, 1931. It was the first butterfly of the spring that year. Other years it appeared in March, but is rather rare at all times throughout the summer.

P. RAPAE is a March butterfly. Comes early and stays late. It occurs until late November, or until freezing weather.

POLYGONIA FAUNUS found June 21, 1929. Not many seen.

P. COMMA comes in early March, then again from July to October.

P. HYLAS appears in June and remains until October.

P. INTERROGATIONIS, both light and dark forms appear in March and persist until November.

P. PROGNE (Comstock) was taken April 15. Very scarce from June until August; abundant from August to November.

RUSTICUS SCUDDERI (Comstock). An early April blue, rather scarce after June.

THANAOS MARTIALIS appears in early March and continues throughout the summer.

THECLA MELINUS (Comstock) is seen through August and until October.

VANESSA ATLANTA comes March 2 and continues all summer until November.

V. CARDUI appears June 1 and is common until November.

V. VIRGINIENSIS is on the wing from April until November.

ZERENE CAESONIA is found in early March but is scarce until June, when it becomes numerous and remains until late November. This butterfly undoubtedly hibernates, as for years I have seen them throughout the winter on sunny days, like *Anaea andria* and others.

A New Species Related to Agromyza virens Loew (Dipt.: Agromyzidae).

By S. W. Frost, The Pennsylvania State College.

Agromyza angelicae n. sp.

A medium to large size species, 2.5 to 3 mm.

♂ : front, face, cheeks, palpi, antennae, mesonotum, scutellum and halteres largely black or dark brown.

Front and orbits concolorous subshiny black, front together with orbits distinctly wider than either eye, front scarcely twice as wide as either orbit, orbits therefore broad and only slightly narrowed below; six strong pairs of fronto-orbitals, orbital hairs abundant and arranged in several rows extending below the lower pair of fronto-orbitals; frontal lunule large and deep, reaching nearly half-way to the vertex of the head; antennae separated by a carina, a distinct ridge between the eye and the base of the antennae almost equal in width to the length of the third antennal segment; this ridge continues around the lower margin of the eye and onto the cheek; cheeks brown, less than one-fourth the eye height, narrowed in front and behind; ocellar triangle scarcely discernible, a faint triangle extends to the frontal lunule, a few minute hairs between the ocellar bristles; antennae entirely brown, second segment with a dorsal bristle, third segment rounded and about as long as broad, tipped with sparse whitish pile; arista nearly bare, about four times as long as the third antennal segment, distinctly thickened on the basal fourth; palpi black normal in shape, beset with black hairs; proboscis and hairs brown; one strong pair of oral vibrissae, accompanying setae along the edge of the cheek distinctly smaller; occiput shiny black, setae about edge small and arranged in several rows; eyes distinctly hairy above especially near the margin of the orbits.

Mesonotum, scutellum and pleurae subshining black, pleural sutures and base of wings only narrowly brown; two pairs of dorso-central bristles; one strong presutural, one strong intraalar; acrostichals numerous, arranged in six or eight rows and extending almost to the scutellum; intraalar hairs also numerous and in three or four rows; one strong propleural bristle, one strong mesopleural with smaller accompanying setae, one strong sternopleural bristle with smaller accompanying setae; scutellum with four bristles.

Legs shiny black, knees not at all yellow or lighter in color, mid tibia with a distinct pair of posterior bristles located near the middle.

Abdomen shining green, setae black.

Wings elongate, rounded at the tip, auxiliary vein terminating in vein one, costa thickened at this point, costa reaching to the fourth vein, third and fourth sections of the costa about equal, anterior and posterior cross-veins nearly parallel, the posterior crossvein about its length from the anterior crossvein, anterior cross-vein distinctly before the middle of the discal cell, the last two sections of the fifth vein as 1:¾; halteres brown; calypteres grey, margin and fringe pale brown.

♀ : resembles male but the orbits are slightly broader and more hairy; eyes feebly hairy above, setae on the posterior margin of the last abdominal segment are long and conspicuous, ovipositor shiny black with faint transverse ridges and minute hairs above and below, hairs at the tip of the basal segment of the ovipositor long but slender, ovipositor when extended about one and a half times as long as the last abdominal segment.

Holotype ♂, reared as a stem miner on *Angelica atropurpurea*, Ithaca, NEW YORK, A. S. Mills. 54 paratypes as follows; 5 ♂ and 4 ♀ Pacific Grove, CALIFORNIA, 1906, J. M. Aldrich, 17 ♂ and 28 ♀ Ithaca, NEW YORK, 1906, A. S. Mills reared as a stem miner on *Angelica atropurpurea*. The holotype will be deposited in the United States National Museum at Washington, D. C., some paratypes in the Academy of Natural Sciences at Philadelphia.

This species runs to *virens* Loew, in Malloch's key (1913) but may be separated by the six strong fronto-orbitals and the large frontal lunule.

New Species of Wasps from North Carolina (Hymenoptera, Psammocharidae).

By C. S. BRIMLEY, Entomological Division, North Carolina Department of Agriculture, Raleigh.

Ageniella adara n. sp.

♂. Black, silvery sericeous; antennae reddish below; last abdominal segment white at base with heavy white pile; legs mostly black, the front tibiae within, middle femora at apex, and hind femora except at base and extreme apex, rufous; wings hyaline definitely tipped with dusky; third cubital cell longer than high; length 7 mm. Two paratypes have a little less red on the legs.

Type, male, Raleigh, NORTH CAROLINA, September 1, 1930, C. S. Brimley; *paratype* males, September 6, August 24, 1930, same locality and collector.

Resembles *aludra* Brimley but has front wings tipped with dusky (evenly hyaline in *aludra*), has more red on the legs, and the third cubital is longer than high and larger than the second, (in *aludra* higher than long and smaller than second). In Banks' key runs to *petiolata,* but differs from Cresson's description by having the legs partly red.

Ageniella julia n. sp.

♂. Black, silvery sericeous, the first two segments of the abdomen and the greater part of the legs reddish yellow. Hind tibiae and four hind tarsi dark brown and a black stripe on outer side of four hind coxae; all tibial spurs white. Wings hyaline slightly but not sharply dusky at tip. Second and third submarginals little if at all wider than high, only slightly narrowed above, the third distinctly the longer. Second submarginal receiving first recurrent a little before middle, third receiving second recurrent in middle; longest spur of hind tibiae more than three-fourths length of its metatarsus.

Runs in Banks' key to couplet 6, and in that couplet agrees best with *apicipennis* Bks, but differs in the face and antennae being wholly black, in lacking the black tip to the wings and in the third submarginal cell being distinctly longer than the second.

Holotype, male, Raleigh, NORTH CAROLINA, June 21, 1932, C. S. Brimley, collector.

Ageniella subra n. sp.

♂. Black, silvery sericeous, all spurs and spot on last abdominal segment, white; wings hyaline tipped with dusky. Second and third cubital cells about twice as long as high, the third receiving the second recurrent before the middle; in forewing nervulus slightly beyond cubitus, in hind wing nervellus much before cubitus. Length 5 mm. A paratype male lacks the white spot on the last abdominal segment.

Type. Male, Raleigh, NORTH CAROLINA, September 23, 1930, *paratype* male, Raleigh, September 14, 1931, both taken by myself.

In Banks' key runs to *virginica,* but differs in having second recurrent vein received by third cubital before, not beyond,

middle and in having a fine impressed line from antennae to ocelli.

Priocnemis gomelza n. sp.

♀, black, first, second and third abdominal segments rufous above, and the second also below, their apices more or less darkened; legs, antennae and wings black. Pronotum strongly angulate behind; nervulus nearly twice its length beyond basal vein, nervellus well before cubitus; second and third cubital cells about equal, longer than high; hind tibiae with about ten serrations, the hairs about as long as the serrations, the numerous spines overtopping both. Length 12mm. (abdomen curved under). Another female is similar but the hind tibiae have only four serrations near the base and another at about apical three-fourths.

Type, female, Raleigh, North Carolina, early April, F. Sherman collector; *paratype* female, Raleigh, April 5, 1929, T. B. Mitchell.

Of those in Banks' key, this species is nearest to *validus* Cr., but differs in smaller size, wholly black antennae, and wing venation.

The types of the new species described in this paper are in the collection of the North Carolina Department of Agriculture, at Raleigh, N. C.

A Tropical Moth in Connecticut (Lepid.: Sphingidae).

On August 25, there was brought to my laboratory a large sphinx moth caught by Mr. A. F. Hooghkirk, an attendant at a gasoline filling station in New Haven. He had never before seen one like it and was anxious to have it identified. It proved to be *Pseudosphinx tetrio* Linn., a species occurring in South and Central America, the West Indies and southern Florida. Just how this moth reached Connecticut is a matter of speculation. For two or three days before it was caught, there had been a heavy storm with strong southerly and easterly winds having a velocity of between 30 and 40 miles an hour. Yet the specimen was fresh and not battered as wind-borne moths are apt to be. I am told that these moths sometimes hide in cargoes of bananas and may be transported long distances before they leave the ship. Possibly this may explain the presence of this moth in Connecticut. Dr. William Schaus of the United States National Museum writes that he believes this to be the northernmost record for this tropical species.—W. E. Britton, Agricultural Experiment Station, New Haven, Conn.

The Emergence and Nymph of Gomphus militaris (Odonata, Gomphinae).[1]

By R. D. Bird.

Gomphus militaris Hagen is a common species in western Oklahoma. Its favorite habitat is about small muddy ponds and stagnant pools of streams. The nymphs are burrowers in the mud which often becomes so thickly encrusted on their skins that it completely hides them. About the water the males are more abundant than the females. They usually fly close to the shore line about six inches above the water, frequently alighting on the muddy banks holding the abdomen slightly elevated and wings horizontal. The female oviposits unattended, by tapping in shallow water with the tip of her abdomen. While so occupied she is usually found by a male who grabs her and they fly off copulating in flight to alight in the grass a short distance back from the pond.

The main emergence in 1932 in Oklahoma was in the middle of May. On the tenth I observed and photographed all the stages of emergence of a female nymph. At 9:46 A. M. on a warm clear morning the nymph was seen to crawl from deeper water to the shore. It was restless and seemed to find difficulty in getting a satisfactory place to emerge, sometimes coming out of the water completely and then going back. It finally came to rest at the very edge with only its back above water. Here it rested for ten minutes before there was a twitching of the wing pads which caused the skin to split. A minute later the head appeared through the slit and in four minutes the thorax and first half of the abdomen. The fore part of the abdomen was bent vertically, thorax slightly forward and legs folded. After resting for four minutes it reached down and with one motion pulled out the rest of the abdomen and stood erect on the exuviae. The abdomen and wings grew rapidly. The wings were at first milky and wrinkled, then they were observed to slowly unfurl from the base outward. They grew more rapidly than the abdomen which they exceeded in length by one-quarter of an inch at 10:28, six minutes after the abdomen was pulled free. By 10:31 they were completely

[1] Contribution No. 116, Department of Zoology, University of Oklahoma, Norman.

unfolded. The abdomen continued to grow and by 10:35 was one-sixteenth of an inch longer than the wings. The teneral now rested with wings folded over the back for twenty-seven minutes. At intervals a drop of clear liquid was exuded, eighty-nine in all. At 11:03, one hour and seventeen minutes after the nymph left the water, the teneral suddenly flew into the vegetation on the bank without any warning or spreading of wings and was lost. The photographs and notes however were sufficient to identify it without doubt.

As the nymph is apparently undescribed, the following description was drawn up from the exuviae.

The drawings accompanying this paper were made by Mr. O'Reilly Sandoz.

GOMPHUS MILITARIS nymph (described from female exuviae): Length 34 mm. General color grey-brown, darker on wing pads and head, but so obscured by mud as to be scarcely visible.

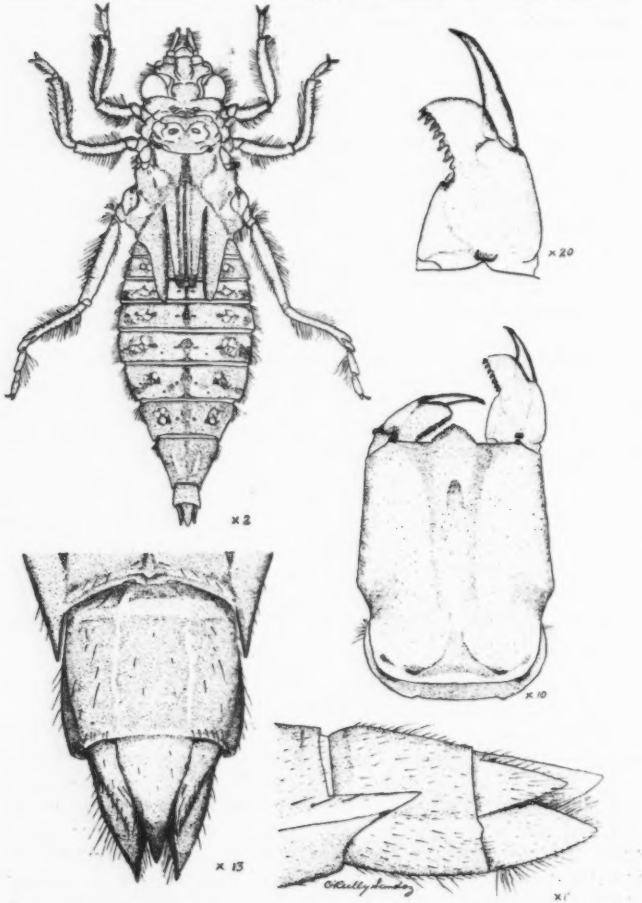
Head slightly concave behind, postero-lateral corners rounded, eyes not prominent, twice as wide as long. Third joint of the antenna one and one-half times as long as the first two joints together, slightly enlarged distally, proximal half fringed on the outside with hairs two-thirds as long as the joint, fourth joint rudimentary. Long hairs fringing the eyes antero-ventrally. Mentum of labium a third longer than wide, constricted in its basal one-third beyond which it is parallel-sided, hinge scarcely reaching to the hind margin of the precoxae. Median lobe about one-quarter as wide as the entire distal margin, rounded and with a short spine at the apex. Labial palpi but little curved, the inner margin slightly curved and with six well-developed teeth.

Thorax. Inner wing pads reaching to the middle of fourth abdominal segment, the outer a little longer. Lateral margins of legs and thorax fringed with long hairs.

Abdomen broadest at segment 4, barely narrower at 5, tapering evenly to 10, which is parallel-sided. Tergal surface with a median ridge but with no dorsal teeth. Measured mid-dorsally, segment 9 is about one-third longer than 8, its apical width about one-half the basal width. Lateral spines on 9 only, but reaching almost to the middle of 10. Segment 10 about two-thirds the length of 9. Anal pyramid a little shorter than 10; epiproct (median appendage) a little shorter than paraprocts (inferior appendages) and a little longer than the cerci.

Measurements. Total length, exclusive of antennae, 34 mm.; antennae 2; abdomen 22.5; hind wing 8; hind femur 7; width of abdominal segment 5, 9.4.

The specimen from which this description is made is deposited in the Museum of Zoology, University of Oklahoma.



Female nymph last instar; left labial palpus; labium, ventral view; dorsal view of abdominal segment 10 and anal pyramid female nymph; lateral view of abdominal segment 10 and anal pyramid female nymph.

ENTOMOLOGICAL NEWS

PHILADELPHIA, PA., FEBRUARY, 1934.

ENTOMOLOGY AT THE CONVOCATION WEEK MEETINGS, DECEMBER 27, 1933, TO JANUARY 2, 1934.

Our annual summary of the entomological items of the programs of the American Association for the Advancement of Science and Associated Societies, held at Boston and Cambridge, Massachusetts, follows:

The number of papers bearing on insects, including those in symposia and non-duplicating demonstrations were:

*Entomological Society of America	42
American Association of Economic Entomologists	128
*American Society of Zoologists	23
*American Society of Parasitologists	7
American Phytopathological Society	2
*Genetics Society of America	23
American Society for Horticultural Science	1
Potato Association of America	1
*Total	227

These papers were distributed in subject as follows:

General Entomology	4	General Economic Entomology	13
Collecting and Rearing Methods	1	*Insecticides	37
*Entomological Instruction	7	Apiculture	12
*Cytology	8	*Insects Affecting Man	2
*Embryology and Life History	6	* do. Other Animals	3
*Anatomy	8	* do. Cereals and Field Crops	16
*Physiology	29	* do. Truck Crops	18
*Ecology	11	do. Ornamental and Greenhouse Plants	3
Behavior	1	do. Fruits and Fruit Trees	18
Geographical Distribution	5	* do. Forest and Shade Trees	13
*Variation	3	* do. Stored Products	1
*Genetics	18	*Insects Carrying Plant Disease Germs	5
Evolution	2		
Taxonomy	2		
*Parasites of Insects	13		

ii

Acarina 2
*Myriopoda 2
*Thysanura 1
*Orthoptera 20
*Dermaptera 1
*Isoptera 3
*Odonata 2
*Homoptera 16
Heteroptera 1
Thysanoptera 5
Neuroptera 1
Trichoptera 1
*Coleoptera (excluding Japanese Beetle) 23
Japanese Beetle 1
Hymenoptera (excluding Honey Bee) 13
*Honey Bee 14
Lepidoptera (excluding Codling Moth, Oriental Fruit Moth and Corn Borers) 17
Codling Moth 11
Oriental Fruit Moth 2
*Corn Borers 7
Diptera (excluding *Drosophila*) 20
**Drosophila* 19

Many of these figures are duplications, both between sections i and ii and also within each section.

The total number of papers at Cleveland, 1930, was 180, at New Orleans, 1931, 185, at Atlantic City, 1932, 212. Increases in numbers of papers over the corresponding figures for 1932 are starred (*).

The Entomological Society of America met on December 28 and 29, in Austin Hall, Harvard University, under the presidency of Mr. R. E. Snodgrass, U. S. Bureau of Entomology, Washington, D. C., Prof. H. B. Hungerford, University of Kansas, Secretary. The annual symposium was on Biological Control.

The Plant Quarantine and Inspection, Apiculture and Extension sections of the American Association of Economic Entomologists met December 27 at the Hotel Bradford, Boston. Sessions of the Association on December 28 and 29 were held in Austin Hall, Harvard University, thus making it possible to pass from one to the other entomological society with little loss of time, a most commendable arrangement. Dr. W. E. Hinds, Baton Rouge, Lousiana, was President; Mr. A. I. Bourne, Amherst, Massachusetts, Secretary; the president's address was on "Some Achievements in Economic Entomology." On December 29 a symposium on the Spray Residue Problem took place.

The Entomologists' Dinner, Thursday evening, December 28, in the ballroom of the Hotel Bradford, Boston, was presided over by Dr. Hinds, who called Dr. W. E. Britton, of New Haven, Connecticut, to act as toastmaster. Dr. C. L. Marlatt, ex-chief, and Mr. L. A. Strong, present chief, of the U. S. Bureau of Entomology, expected to address the diners, but were, regrettably, unable to attend. Dr. W. C. O'Kane and Dr. E. F. Phillips spoke. Dr. Hinds called Mr. Snodgrass to the chair and the latter introduced Dr. F. E. Lutz, American Museum of Natural History, New York, who wittily delivered the annual public address of the Entomological Society of America, entitled "What's the Use." Special mention should be made of the unnamed philologists who produced the trilingual menu and program in parallel columns, Greek, Latin and English.

An Observation on the Activity of Laccophilus maculosus Say (Coleoptera-Dytiscidae).*

During the summer of 1929, while collecting aquatic beetles on Presque Isle State Park at Erie, Pennsylvania, the following interesting observations were made:

In one of the temporary beach pools numerous small Dytiscidae (*Laccophilus maculosus* Say) were noted. These beetles were most active along the shore margins of the pool in the emergent aquatic vegetation. Approximately sixty beetles were observed feeding upon a small, dead frog. A number of these were collected and thirty were placed on the beach at a distance of about ten feet from the edge of the pool. This was done with the idea of determining whether the attempts of the beetles, to get back to the water, would be aimless or definite. The beetles moved over the hard sand with a crawling and springing type of locomotion that is characteristic of that particular group of Dytiscids. Two of the beetles moved parallel with the shore of the pool and in the direction of the prevailing wind. The other twenty-eight moved directly toward the pond. Although their method of locomotion was somewhat slow,—the last of the beetles reached the water within about five minutes. It was interesting to note that none of these beetles moved away from the water.—JOHN T. GAMBLE, Thiel College, Greenville, Pennsylvania.

* Contribution from the University of Pittsburgh Lake Laboratory.

Change of name (Odonata: Agrionidae).

Dr. Paul H. Oehser has kindly called my attention to the fact that the name *Rima* used by me recently (Amer. Mus. Novitates No. 664, p. 3, 1933) for a new genus of Odonata—Zygoptera—is preoccupied by Paul Pellary for a new subgenus of mollusks (Abh. Senckenberg Nat. Gs., 30:110, 1910). I therefore change it to the diminutive form **Rimanella.**

J. G. NEEDHAM.

Another Case of Odonate Migration (Aeshnidae).

On August 28, 1932, I returned to Presque Isle, Pennsylvania, for some late observation and collecting. This day was very cloudy, cool and rainy, but I noticed as I walked through what is called the prairies (sandy section with small bushes) many large dragonflies darted up ahead of me out of the bushes. Some had hidden quite deep in the bushes and when startled, made quite a rustle, so some of these were captured. They were all *Anax junius*. After a short flight they would alight and hide. Nothing was thought of this or the following day (Monday) which was still misting and windy. On Tuesday the sun came out bright, so I was afield early. When I reached the prairies, after visiting several ponds, the air was swarming with dragonflies. They were there in the thousands, flying about 15 to 25 feet above the ground, so it was impossible to capture any just then. They seemed to be flying in a circle, over quite a large area, as if feeding, for soon they would move to another place. I kept following and watching, continuously trying to capture some, but without results. Finally I found a place where they were swooping down past a large bush. I concealed myself here and caught them with ease. As a matter of fact I captured seven *Anax* with one swoop of the net. Probably this lasted for 15 or 20 minutes, then they moved on. Those captured were of both sexes.

I left this wonderful sight to see if there was any activity on the various ponds, but found there was not an *Anax* to be seen.

I had found numerous *Anax* nymphs in Niagara Pond while collecting during the summer, so I thought I would see if these had emerged, but on examination I found them to be as plentiful as ever and not an *Anax* to be seen over this pond.

After watching this scene from 8 A. M. to 12.30 P. M. I had to leave and head my car for Pittsburgh as the Pittsburgh Schools opened the next day.—R. G. EMERY, JR., Pittsburgh, Pennsylvania.

Thecla siva Edwards (Lepid.: Lycaenidae).

On June 17, 1933, I had the pleasure of taking a number of specimens of *T. siva* at flowers of *Pentstemon,* at Swissvale, on the Rio Grande, in Fremont County, Colorado. The country is open and dry, and there are many juniper trees (*Sabina*) on which the larvae undoubtedly live. This beautiful little butterfly was described by W. H. Edwards in 1874, the locality being given as Fort Wingate, Arizona, the collector H. W. Henshaw. Fort Wingate is actually in New Mexico. J. A. Comstock has discovered a small and rather pale form in Southern California, *T. siva juniperaria* Comst., and has found the larva on juniper. Holland gives *T. rhodope* Gr. and Rob. (it should be Godman and Salvin) as a synonym of *T. siva,* but Capt. N. D. Riley of the British Museum informs me that this insect (from Sonora) appears to be a good subspecies, *T. siva rhodope.* It is "uniformly pale greyish-brown on the upperside, except for a little fulvous toward the anal angle of the hind wing." *T. blenina* Hewitson, from Mexico, which has been regarded as identical with *T. siva,* is (Capt. Riley tells me) definitely distinct, and is identical with *T. xami* Raekirt as stated by Holland. The various references to *T. siva* in the literature are curiously confused, both as to distribution and synonym.

T. D. A. COCKERELL, Boulder, Colorado.

Revista de Entomologia.

I would like to call attention again to the Revista de Entomologia, a South American journal, now in its third year, edited by Fr. Thomaz Borgmeier, O. F. M. This journal is maintaining a very high standard in every respect and deserves support. The editor writes me:—

> "The financial side of my undertaking makes me a great deal of worry. I receive not a particle of state support and unfortunately have not enough subscribers to cover the outlay. The Revista is a crying necessity and I receive all the time more manuscripts that I can print. I have scarcely 200 subscribers and I am printing 500 copies in each edition. If I could get 50 subscribers in the United States, it would help my project greatly."

A unique and very valuable feature is his quarterly review of South American publications in entomology. Without such

a review it is almost impossible for entomologists in the United States to learn what is being published in South America.

The subscription price is $3.00 in U. S. money, which may be sent to the editor, whose address is:—

Thomaz Borgmeier, O. F. M., Convento S Antonio, Rio de Janeiro, Brazil, S. A.

J. M. ALDRICH.

Entomological Literature

COMPILED BY LAURA S. MACKEY UNDER THE SUPERVISION OF E. T. CRESSON, JR.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

The figures within brackets [ ] refer to the journal in which the paper appeared, as numbered in the list of Periodicals and Serials published in our January and June issues. This list may be secured from the publisher of ENTOMOLOGICAL NEWS for 10c. The number of, or annual volume, and in some cases the part, heft, &c. the latter within ( ) follows; then the pagination follows the colon :

All continued papers, with few exceptions, are recorded only at their first installments.

*Papers containing new forms or names have an * preceding the author's name.

(S) Papers pertaining exclusively to neotropical species, and not so indicated in the title, have the symbol (S) at the end of the title of the paper.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

☞ *Note the change in the method of citing the bibliographical references, as explained above.*

Papers published in the Entomological News are not listed.

GENERAL.—Agassiz, R. G.—Notes on the life history of the Entomological Society of British Columbia. [Pro. Ent. Soc. Brit. Col.] No. 30: 3-7. **Buckell, E. R.**—A convenient method of storing entomological specimens in alcohol, with particular reference to dragonflies. [Pro. Ent. Soc. Brit. Col.] 30: 23-24. **Chapman, R. N.**—The causes of fluctuations of populations of insects. [37] 8: 279-292, ill. **Ingles, L. G.**—The succession of insects in tree trunks as shown by the collections from the various stages of decay. [13] 25: 57-59. **Kuwana, S. I.**—Obituary. By E. O. Essig. [12] 26: 1185-1188, ill. **Ruediger, E.**—Das gleichgewicht in der natur. [17] 50: 297-299. **Scheibert, J.**—Das photographieren freilebender schmetterlinge. [17] 50: 313-316. **Van Cleave, H. J.**—An index to the International Rules of Zoological Nomenclature. [Trans. American Micro. Soc.] 52: 322-325.

ANATOMY, PHYSIOLOGY, ETC. — Anon.—Sensory setae of the California tarantula and some other arthropods. [13] 25: 61-67. **Bodenstein, D.**—Zur frage der bedeutung hormoneller beziehungen bei der insektenmetamorphose. [88] 49: 861-863. **Green, T. L.**—Some aspects of the metamorphosis of the alimentary system in the wasp, Vespa vulgaris. [93] 1933: 629-644, ill. **Günther & Deckert.**—Vergleichende untersuchungen über gelenkung und muskulatur der beine bei Orthopteren. [Mitt. Zool. Mus. Berlin] 19: 377-405, ill. **Määr, A.**—Ueber die möglichkeiten der anwendung von salmiak-weissung bei zoologischen objekten. [Sitzungsb. Naturf.-Ges. Univ. Tartu] 39: 224-229, ill. **Maulik, S.**—On the structure of larvae of Hispine beetles. [93] 1933: 669-680, ill. **Payne, N. M.**—The differential effect of environmental factors upon Microbracon hebetor (Braconidae) and its host, Ephestia kuhniella (Pyralidae). II. [Ecol. Monogr.] 4: 3-46, ill. **Pemberton, C. E.**—Delayed incubation period among eggs of Oxya chinensis. [37] 8: 251-252.

ARACHNIDA AND MYRIOPODA. — *Canals, J.—Curiosa araña argentina del género Trochanteria. [Physis] 11: 233-237, ill. (S). ***da Fonseca, F.**—Notas de Acareologia. [Mem. Inst. Butantan] 7: 127-158, ill. (S). **Jacot, A. P.**—Earliest genera of mites and their types. [10] 35: 206-208. **Olenev & Rozhdestvenskaja.** — A pathological condition observed in ticks (Ixodidae). [Parasitology] 25: 478-479, ill. ***Roewer, C. F.**—Ergebnisse der österreichischen biologischen Costa-Rica-Expedition 1930. Opilioniden. [Ann. Naturhist. Mus. Wien] 46: 275-295, ill.

THE SMALLER ORDERS OF INSECTS.—Ebeling, W.—Some differences in habits and structure between citrus thrips and flower thrips. [Mo. Bull. Dept. Agric. Calif.] 22: 381-384, ill. ***Gloyd, L. K.**—A new Corduline dragonfly, Tetragoneuria sepia, from Florida. [Occ. Pap. Mus. Zool. Univ. Michigan] No. 274: 5pp., ill. ***Hood, J. D.**—Notothrips folsomi, a new genus and species of Thysanoptera from the United States. [10] 35: 200-205, ill. ***Mosely, M. E.**—A revision of the genus Leptonema (Trichoptera). [Brit. Mus. Nat. Hist.] 1933: 69pp., ill. (S).

ORTHOPTERA.—Chopard, L.—Ergebnisse einer zoologischen sammelreise nach Brasilien, insbesondere in das Amazonasgebiet. Gryllodea. [Ann. Naturhist. Mus. Wien] 46: 243-253, ill.

HEMIPTERA.—*Miller, F. W.—Three new species of aphids from Idaho. [4] 65: 249-253, ill. **Oman, P. W.**—Phlepsius ishidae in North America. [10] 35: 205-206. ***Poos, F. W.**—Four new species of Empoasca (Cicadellidae). [10] 35: 174-179, ill. **Walton, W. R.**—Correction [on Poos' paper on Empoasca] [10] 35: 212.

LEPIDOPTERA.—*Biedermann, R.—Note sur deux rhopalocères sudaméricains. [25] 38: 278-279. ***Clark, B. P.**—Descriptions of three new subspecies of Sphingidae. [Pro. New Eng. Zool. Club] 13: 101-103. **Forsyth, L. E.**—Citheronia sepulchralis. [Lepid. News, Miami, Fla.] 1: No. 2. **Hemming, F.**—Holarctic butterflies: miscellaneous notes on nomenclature. [9] 66: 275-279. ***Keifer, H. H.**—California Microlepidoptera VI. [Mo. Bull. Dept. Agric. Calif.] 22: 351-365, ill. **Matteson, J. H.**—America's largest hawkmoth. [Lepid. News, Miami, Fla.] 1: 1-4. **Mehta, D. R.**—Comparative morphology of the male genitalia in Lepidoptera. [Rec. Indian Mus.] 35: 197-266, ill. ***Reich, P.**—Neue südamerikanische Arctiiden. [18] 27: 345-349; 364-366, ill. ***Rousseau-Decelle, G.**—Notes sur quelques formes nouvelles des genres Papilio et Charaxes. [25] 38: 269-273. (S). **Schneider, F. C.**—Notes on Colaenis cillene. [Lepid. News, Miami, Fla.] 1: No. 2. **Van Duzee, E. P.**—The Templeton Crocker Expedition of the California Academy of Sciences, 1932. The diurnal lepidoptera of the expedition. [61] 21: 139-145.

DIPTERA.—*Aldrich, J. M.—Notes on Diptera. No. 6. [10] 35: 165-170. Two reared species of Tachinidae from South America. [10] 35: 170-173, ill. ***Austen, E. E.**—New and little-known species of Cuterebra and Bogeria (Oestridae). [93] 1933: 699-713, ill. **Bequaert, J. C.**—The Templeton Crocker Expedition of the California Academy of Sciences, 1932. The Hippoboscidae of the Galapagos Archipelago (Notes on the Hippoboscidae. 8) with an appendix on the Tabanidae. [61] 21: 131-137. ***Collin, J. E.**—Diptera of Patagonia and South Chile. Part IV. Empididae. 334pp., ill. ***Cushing & Patton.**—Studies on the higher Diptera of Medical and Veterinary importance. Cochliomyia americana, the screw-worm fly of the New World. [Ann. Trop. Med. & Parasit., Liverpool] 27: 539-551, ill. ***Edwards, F. W.**—Oxford University Expedition to Hudson's Strait, 1931: Diptera Nematocera. With notes on some other species of the genus Diamesa. [75] 12: 611-620, ill.

Emmart, E. W.—The eggs of four species of fruit flies of the genus Anastrepha. [10] 35: 184-191, ill. (S). **Patton, W. S.**—Studies on the higher Diptera of Medical and Veterinary importance. II. The genus Stomoxys. [Ann. Trop. Med. & Parasit., Liverpool] 27: 501-537, ill. ***Prado & da Fonseca.**—Um genero novo e algumas especies de Sarcophagas (Stephanostomatidae) da cidade de S. Paulo. [Mem. Inst. Butantan] 7: 159-171, ill. ***Sein, F.**—Anastrepha (Trypetydae) fruit flies in Puerto Rico. [Jour. Dept. Agric. Puerto Rico] 17: 183-196, ill. **Spencer, G. J.**—The identity of the carnation maggots of British Columbia. [Pro. Ent. Soc. Brit. Col.] No. 30: 21-22.

COLEOPTERA.—Bedard, W. D.—The number of larval instars and the approximate length of the larval stadia of Dendroctonus pseudotsugae with a method for their determination in relation to other bark beetles. [12] 26: 1128-1134, ill. ***Blake, D. H.**—Two new species of Systena, with notes on differences in sexual coloration in the genus. [10] 35: 180-183, ill. **Blake, D. H.**—Revision of the beetles of the genus Disonycha occurring in America north of Mexico. [50] 82, Art. 28: 66pp. **Bruch, C.**—Notas biológicas sobre tres hispidos. [Physis] 11: 213-224, ill. ***Fisher, W. S.**—New species of buprestid beetles from Mexico and Central America. [50] 82, Art. 27: 47pp. ***Jeannel, R.**—Trois Adelops nouveaux de l'Amérique du Nord. (Catopidae). [25] 38: 251-253. **Knowlton, G. F.**—Ladybird beetles as predators of the potato psyllid. [4] 65: 241-243. **Kuntzen, H.**—Aus den verbreitungstatsachen mitgefolgerte neue auffassungen über das system einiger Scarabaeidengenera vornehmlich der paläarktischen region. [Mitt. Zool. Mus. Berlin] 19: 458-474. **Leng & Mutchler.**—Catalogue of the Coleoptera of America, North of Mexico. Suppl. 2 & 3. 112pp. ***Scott, H.**—The systematic position of the family Hemipeplidae and descriptions of new species. [75] 12: 595-611, ill. **van Emden, F.**—Revision der gattung Cratosomus (Cur C.). [52] N. F. 2: 354-464, ill. ***Wallis, J. B.**—New species of Hypophloeus. [4] 65: 247-249. ***Wallis, J. B.**—Three new species of Hydroporus belonging to the Vilis group. [4] 65: 261-262. **Wolcott, G. N.**—The larval period of Diaprepes abbreviatus. [Jour. Dept. Agric. Puerto Rico] 17: 257-264, ill.

HYMENOPTERA.—*Alfken, J. D.—Ergebnisse einer zoologischen sammelreise nach Brasilien, insbesondere in

das Amazonasgebiet. Apidae. [Ann. Naturhist. Mus. Wien] 46: 303-307. ***Bequaert, J.**—The Nearctic social wasps of the subfamily Polybiinae (Vespidae). [70] 13: 87-148, ill. ***Bischoff, H.**—Beiträge zur kenntnis der Trigonaloiden. [Mitt. Zool. Mus. Berlin] 19: 480-496. (S). ***Compere, H.**—The parasites of Pseudoccus comstocki. [4] 65: 243-247, ill. **Hedicke, H.**—Beiträge zur systematik der gattung Andrena (Apid.). [Mitt. Zool. Mus. Berlin] 19: 199-220. ***Muesebeck, C. F. W.**—Seven new species of reared Braconidae. [10] 35: 193-200. ***Walley, G. S.**—New and little known Canadian parasitic Hymenoptera (Ichneumonoidea). [4] 65: 253-261.

OBITUARY.

The untimely death of Dr. Nelson C. Davis (member of the Field Staff of the International Health Division of The Rockefeller Foundation) on October 21, 1933, at Bahia, Brazil, at the age of 41 years, is most unfortunate for medical entomology. Although especially noted for his contributions to the knowledge of yellow fever and malaria of South America, his insatiable interest in anophelines made him an outstanding authority on the biology, taxonomy, and medical importance of the species of this group.

He was the first to verify *A. pseudopunctipennis* as the chief malaria vector in the Argentine, to discover *A. darlingi* in the Amazon region, to demonstrate that this mosquito is one of the most formidable malaria vectors indigenous to Brazil, and to show that the recent African invader of Brazil, *A. gambiae*, possesses a capacity for transmitting malaria in Brazil possibly exceeding that known for the species in its native home.

His contributions on the biology of *Aedes aegypti* and the larvae of the Brazilian species of *Mansonia*, as well as those dealing with the transmission of yellow fever by mosquitoes other than *Aedes aegypti* and a diversity of other arthropods are likewise of outstanding importance.

It is most regrettable that we must lose this remarkably reliable source of information and stimulation as well as a valued friend.—R. C. Shannon.

RECENT LITERATURE

FOR SALE BY

THE AMERICAN ENTOMOLOGICAL SOCIETY

1900 RACE STREET, PHILADELPHIA, PA.

These prices to DOMESTIC PURCHASERS only.

Quotations to foreign purchasers will be given on application and are Subject to differences in Foreign Exchange rates.

COLEOPTERA

972.—**Goldman** (E. H.).—Comparisons of the mouth-parts of adult longicorn beetles with reference to their food (Cerambycidae). (Trans., **59**, 85-102, 1 pl., 1933)..... .40

976.—**Blaisdell** (F. E.).—Studies in the Tenebrionidae III. A monographic revision of the genus Centronopus inhabiting America north of Mexico. (Trans., **59**, 191-228, 2 pls., 1933) ..... .80

LEPIDOPTERA

977.—**Braun** (A. F.).—Pupal tracheation and imaginal venation in Microlepidoptera. (Trans., **59**, 229-268, 7 pls., 1933) 1.00

971.—**Williams and Bell.**—Studies in the American Hesperoidea. Paper I. (Trans., **59**, 69-84, 1 pl., 1933)..... .35

ODONATA

974.—**Duncan** (P. M.).—The muscles and the nerves of the ovipositor of Anax junius. (Trans., **59**, 145-157, 1 pl., 1933) ..... .30

ORTHOPTERA.

970.—**Hebard** (Morgan).—Studies in the Dermaptera and Orthoptera of Colombia. Supplement to papers 1-5. (Trans., **59**, 13-67, 2 pls., 1933) 1.15

973.—**Hebard** (Morgan).—Notes on Panamanian Dermaptera and Orthoptera. (Trans., **59**, 103-144, 2 pls., 1933).... .80

975.—**Rehn** (J. A. G.).—On the Dermaptera and Orthoptera of Chile. (Trans., **59**, 159-190, 1 pl., 1933)..... .70

THYSANOPTERA

978.—**Steinweden** (J. B.).—Key to all known species of the genus Taeniothrips (Thripidae). (Trans., **59**, 269-293, 1 pl., 1933) ..... .50

GENERAL

3301.—**Johnson** (C. W.).—Charles Willison Johnson, 1863-1932. By C. T. Brues. (Ent. News, **44**, 113-116, port., 1933) .15

3302.—**Holland** (W. J.).—List of entomological papers written by Dr. W. J. Holland. By A. Avinoff. (Ent. News, 44, 171-177, 1933) ..... .15

Herewith find remittance for $....., for which please send me the items checked above.

Write your name and address in the space below.

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale or services rendered. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and, only when necessary those at the top (being longest in) are discontinued.

Wanted—Names and addresses of those desiring insects from Wisconsin. Will collect in all orders from May to October. Correspondence invited. George Kettler, Platteville, Wis.

Wanted—Names and addresses of those desiring Coleoptera, Lepidoptera and Hymenoptera of Pennsylvania and New Jersey. R. C. Casselberry, 71 E. Price Ave., Lansdowne, Pa.

Exchange—Texas Orthoptera. F. B. Isely, Trinity University, Waxahachie, Texas.

Wanted—Names and addresses of those desiring insects from Colorado. Charles H. Hicks, P. O. Box 262, Boulder, Colorado.

Desire to Exchange—Lepidoptera—pupae—ova. Cocoons, chrysalids especially wanted. Correspondence desired from all parts U. S., Canada, Mexico, Central, South America. Arthur Smith, Los Banos, California.

Geometers Wanted for cash, or in exchange for West Coast Butterflies, Noctuids or other Geometers. Edward Guedet, P. O. Box 305, Napa, Calif.

SUBSCRIPTION BLANK

Enclosed find payment for my subscription to ENTOMOLOGICAL NEWS for one year, beginning with issue for.....

Name .....

Address .....

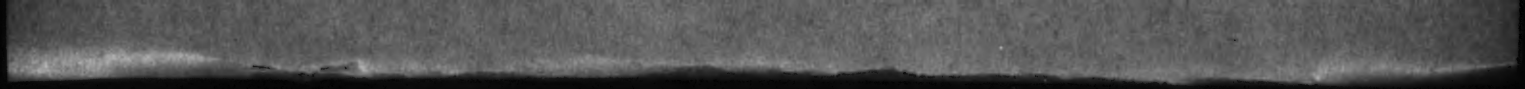
Post Office .....

The subscription price per year of ten (10) numbers:

United States Central and South America, $3.00
Canada, - - - - - - - - 3.15
Foreign, - - - - - - - - 3.25

Payments are acceptable in United States currency and Postal Money Order, by Check on Domestic (United States) bank, Foreign draft on New York, and by International Postal Order.

Address ENTOMOLOGICAL NEWS,
1900 RACE STREET, PHILADELPHIA, PA., U. S. A.



FINE INDIAN BUTTERFLIES,

named in papers, 100, about 50 species, $6.00. 200 ditto, about 100 species, $12.00. About 200 species of named Indian Lycaenidae at cheap rates. Thousands of Morphos from French Guiana, etc., at cheap rates per dozen or 100.

British Lepidoptera and Coleoptera, named. Many important works on European Lepidoptera, etc. Particulars from

A. FORD, CZ., ENTOMOLOGIST
42. IRVING ROAD. BOURNEMOUTH. ENGLAND

For Sale Butterflies and Moths native to southern tip of Florida. Special: bred specimens of Citheronia sepulchralis at $5.00; Automeris lilith at 50 cents

MRS. LESLEY E. FORSYTH,
Florida City, Florida.

JUNGLE BEES AND WASPS OF BARRO COLORADO ISLAND.
PHIL RAU. 338 pp. 129 illustrations. $2.75. The Author, Kirkwood, Missouri.

An account of the ecology and biology of the social and solitary wasps and stingless bees of a jungle island in Panama, with emphasis placed upon their mental attributes and adaptations. All the observations and deductions are brought to a focus in a final chapter, "Mind as a Forerunner in Evolution," which views the method of organic evolution in a new light.

Scarce Literature Now Available

Contributions which appeared in the various publications of the Academy of Natural Sciences of Philadelphia often have been unprocurable by students on account of the rarity of separata, which in years past were not retained for sale by the Academy. All papers published since 1921, however, are now available and can be obtained from the Academy at moderate prices. In addition excerpts of nearly all other papers which appeared in the "Proceedings" or "Journal" since 1860 can be supplied.

Our price lists of entomological and other publications now available will be supplied on request, and information gladly furnished upon any other specially desired publication of the Academy. Supplementary editions of these price-lists, containing a large number of additional titles, are also in preparation.

Academy of Natural Sciences of Philadelphia
Nineteenth and the Parkway
Philadelphia, Pennsylvania

Ward's Entomological Services

Entomological Supplies and Equipment

Carefully designed by professional entomologists. Material of high quality at low prices. *Send for Catalogue No. 348.*

Insect Preparations

Life Histories, Type Collections, Collections of Economic Insects and Biological Insect Collections. All specimens are accurately determined. *Send for Catalogue No. 360.*

Insects for the Pest Collection

We have in stock over three hundred species of North American Insect Pests. *Send for Price List No. 349.*

Ward's Entomological Bulletin

A monthly publication sent free to all entomologists requesting it.

Information for the Beginner

Send for "*Directions for Collecting and Preserving Insects*" by Dr. A. B. Klots. A mine of useful information. Price 15 cents.

Ward's Natural Science Establishment, Inc.

P. O. Box 24, Beechwood Station

ROCHESTER, N. Y., U. S. A.

The Frank A. Ward Foundation
of Natural Science of the
University of Rochester